

The CRISIS Prevention Study: Care in a Time of Crisis

For critically ill children in the ICU their health and well-being are at risk perhaps not only for the reasons they are there but also the possibility of infection acquired during their hospital stay. These infections, known as nosocomial infections, can be very problematic. Despite strict hand washing, sterile technique, and antibiotic-coated catheters, nosocomial infection and sepsis remain the leading acquired causes of morbidity and mortality in critically ill children. Subsequent use of antibiotics to treat nosocomial infections and sepsis is considered a major attributable factor in the rise of antibiotic-resistant organisms in these children thus compounding this predicament.



During an ICU stay last summer, Chase participated in a clinical research study to help combat infections acquired during hospitalization.

NIH-funded pediatric researchers are addressing this challenge through the Critical Illness Stress-induced Immune Suppression (CRISIS) Prevention Study. This network of critical care physicians includes researchers at ACHRI. Dr. Ron Sanders is the site Principal Investigator. Dr. Parthak Prodhon serves as the Alternate Principal Investigator and RN Glenda Hefley is the Research Coordinator. Together with their network colleagues throughout the US, they are testing the combination of an intervention drug (given through an IV) and a dietary supplement (provided through a gastric tube).

The intervention drug helps with gut motility and reducing reflux, and it increases serum prolactin levels and decreases lymphocyte death, both necessary to support the immune system. The supplements (zinc, selenium, and glutamine) decrease stress-induced reduction of lymphocytes in the blood. The study is determining that if together these two approaches help to boost the immune system and either delay the onset of nosocomial infections or decrease them altogether.

Since 2006, children have been enrolling in the CRISIS Prevention Study. One of these children was Chase. In the summer of 2008, he had a closed head injury. After reaching the hospital in Conway, Chase was transported by helicopter to ACH. His mother, Janie, allowed her son to participate in the CRISIS Prevention Study because "we were willing to do anything we can do to help make it better for any child going through these circumstances." Chase had 8 different lines, including a feeding tube, a peripheral IV, and 2 central lines, connected to him while in the ICU. The need to prevent infection during his 21-day ICU stay was essential. "We want to avoid life-threatening infections while in the ICU," says Dr. Sanders, adding "we don't want children to succumb to an underlying illness in the ICU that they otherwise would have survived." Decreasing the length of stay in the ICU is another consideration of the study.

Chase marked his twelfth birthday in the ICU and after his release had rehabilitation and therapy at ACH. He started school late, and then went for only half-days at first. An athletic child, Chase's activities had to be approved, at first, and approved activities then required protective gear. Now he is cleared to participate in various sporting activities.

Under the circumstances of a critically injured child, the family made the decision to participate in this important clinical study. Janie says, "We didn't know if he was going to live or live without deficits, but it wasn't a question of 'will we?'...we had the opportunity to help other children in a similar situation. Why wouldn't you?"



Established in 1989, Arkansas Children's Hospital Research Institute provides an on-site research environment for faculty of the University of Arkansas for Medical Sciences working on the Arkansas Children's Hospital campus. Over 120 pediatric researchers with expertise and experience that span the breadth of medical disciplines comprise ACHRI's roster of investigators who work to fulfill its mission to improve children's health, development, and well-being through high quality research. For more information, visit <http://achri.archildrens.org>.